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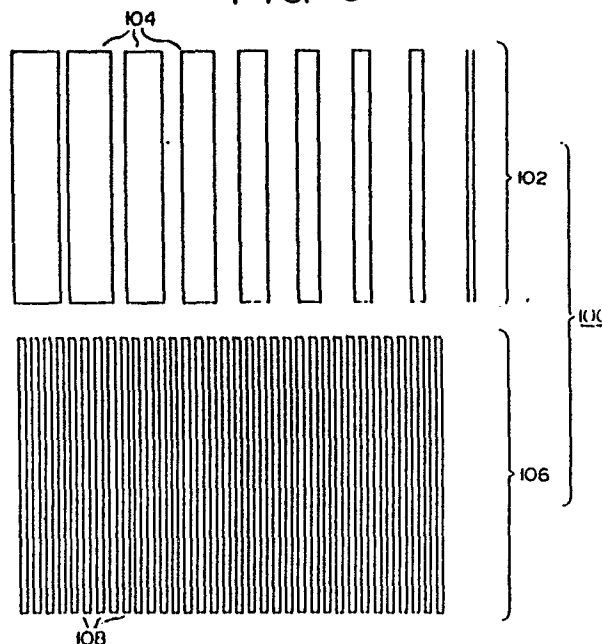
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(54) **Method of aligning two members utilizing marks provided thereon.**

(57) Alignment marks (120, 100) are formed on the opposite surfaces of a photoelectric mask (78) and a wafer (74). Each mark (120, 100) has a plurality of lines (124, 104) provided at a predetermined pitch. Widths of the lines (124) of the photoelectric mask (78) are progressively increased. On the while, widths of the lines (104) of the wafer (74) are progressively decreased. The marks of the wafer and the mask are opposite to each other such that lines of the maximum and minimum widths are opposite to each other. The overlapping area of the marks changes quadratically as a function of positional deviation between the mask (78) and the wafer (74). When the mask is irradiated with ultraviolet light, X-rays are emitted from the mark (100) on the wafer (74) at an intensity corresponding to the overlapping area and are detected by an X-ray detector (70). The intensity of X-rays emitted changes quadratically as a function of deviation. The electron beam is scanned, and a detection signal is synchronously detected. The obtained PSD signal does not have a nonsensitive region and changes linearly as a function of deviation even if the beam scan width is narrow.

FIG. 9





European Patent
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EUROPEAN SEARCH REPORT

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Application number

EP 84 30 3612

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
A	IEEE TRANSACTIONS ON ELECTRON DEVICES, vol. ED-22, no. 7, July 1975, pages 409-413; J.P. SCOTT: "An electron image projector with automatic alignment" * Pages 411,412; figures 4,5 *	1	G 03 B 41/00

A	PHILIPS TECHNICAL REVIEW, vol. 37, no. 11/12, 1977, pages 347-356; J.P. SCOTT: "Electron-image projector" * Page 352, left-hand column, lines 5-16; figure 5 *	1	

			TECHNICAL FIELDS SEARCHED (Int. Cl. 3) H 01 J 37 G 03 B 41 H 01 L 23 G 03 F 1
The present search report has been drawn up for all claims			
THE HAGUE <small>Place of search</small>		11-09-1987 <small>Date of completion of the search</small>	WITH F.B. <small>Examiner</small>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			